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Published in:
Clinical Nutrition Experimental

DOI:
[10.1016/j.yclnex.2016.05.003](https://doi.org/10.1016/j.yclnex.2016.05.003)

Publication date:
2016

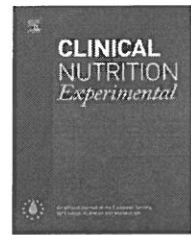
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Citation for published version (APA):
Nielsen, M. O., Hou, L., Johnsen, L., Khanal, P., Bechshøft, C. L., Kongsted, A. H., Vaag, A., & Hellgren, L. I. (2016). Do very small adipocytes in subcutaneous adipose tissue (a proposed risk factor for insulin insensitivity) have a fetal origin? *Clinical Nutrition Experimental*, 8, 9-24. <https://doi.org/10.1016/j.yclnex.2016.05.003>



Contents lists available at ScienceDirect

Clinical Nutrition Experimental

journal homepage: <http://www.clinicalnutritionexperimental.com>

Do very small adipocytes in subcutaneous adipose tissue (a proposed risk factor for insulin insensitivity) have a fetal origin?

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ARTICLE INFO

Article history:

Received 18 February 2016

Accepted 30 May 2016

Available online xxx

Keywords:

Fetal programming

Subcutaneous expandability

Visceral obesity

Mesenteric fat

Perirenal fat

Fatty acid composition

SUMMARY

Background & aims: Previous studies have shown that fetal life malnutrition affects preferences for fat deposition in the body thereby predisposing for visceral adiposity and associated disorders in glucose–insulin regulation. In this study, we aimed to test the hypotheses that late-gestation undernutrition 1) has long-term differential impacts on development, expandability and metabolic features in subcutaneous as compared to perirenal and mesenteric adipose tissues, which 2) will predispose for visceral obesity upon exposure to an obesogenic diet in early postnatal life.

Methods: Twin-bearing last trimester ewes received diets supplying 100% (NORM) or 50% (LOW) of protein and energy requirements. Lambs received moderate, low-fat (CONV) or high-carbohydrate-high-fat (HCHF) diets from 3-days until 6-months of age (just after puberty), and then half the lambs (including all males) were sacrificed. Remaining animals (exclusively females) received a low-fat, grass-based diet until sacrificed at 2-years of age (adulthood). In subcutaneous, perirenal and mesenteric fat, energy metabolism related gene expressions and fatty acid composition were

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<http://dx.doi.org/10.1016/j.clnex.2016.05.003>

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Please cite this article in press as: Nielsen MO, et al., Do very small adipocytes in subcutaneous adipose tissue (a proposed risk factor for insulin insensitivity) have a fetal origin?, *Clinical Nutrition Experimental* (2016), <http://dx.doi.org/10.1016/j.clnex.2016.05.003>